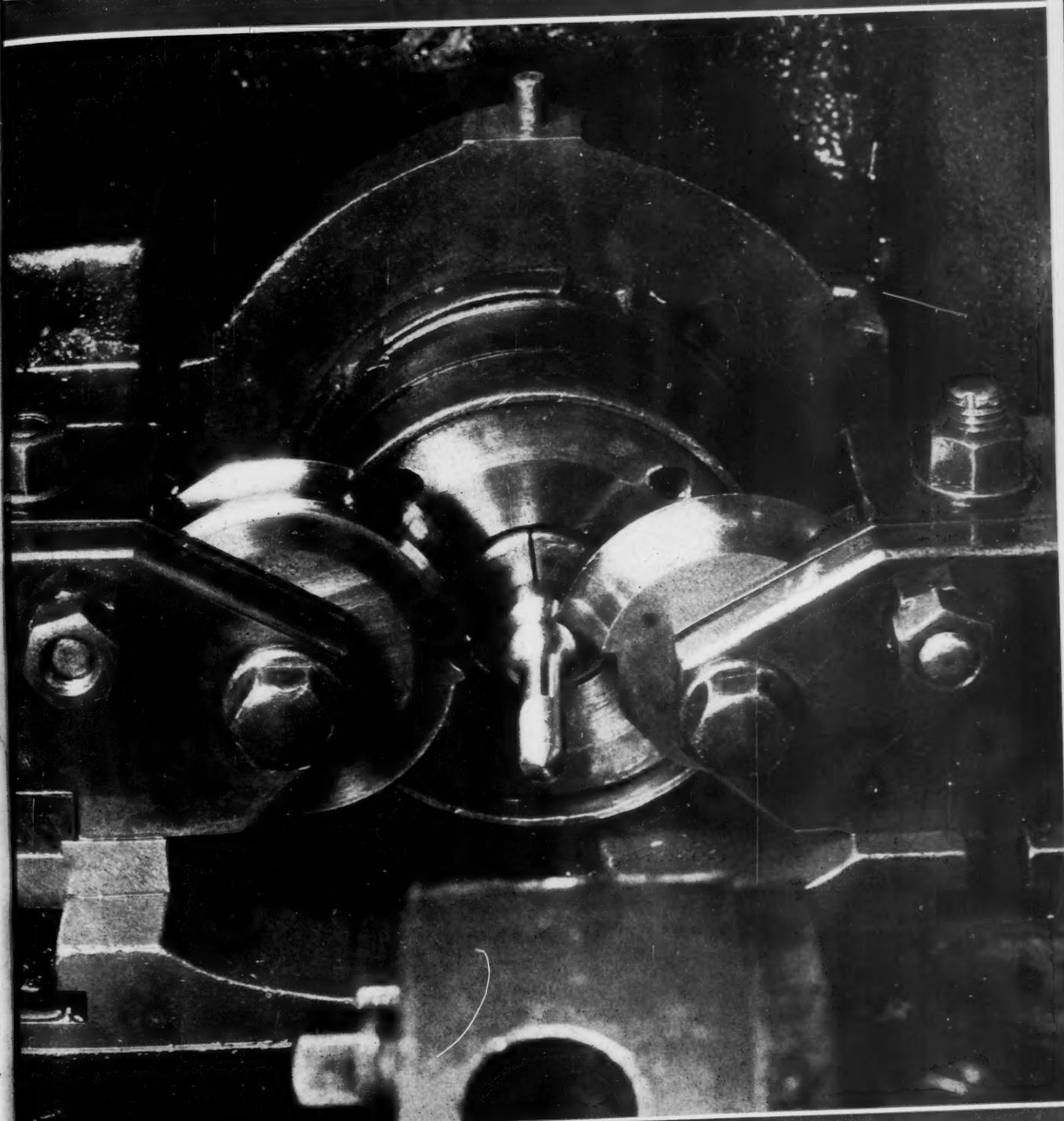


# Industrial Standardization

*and Commercial Standards Monthly*



May

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1937

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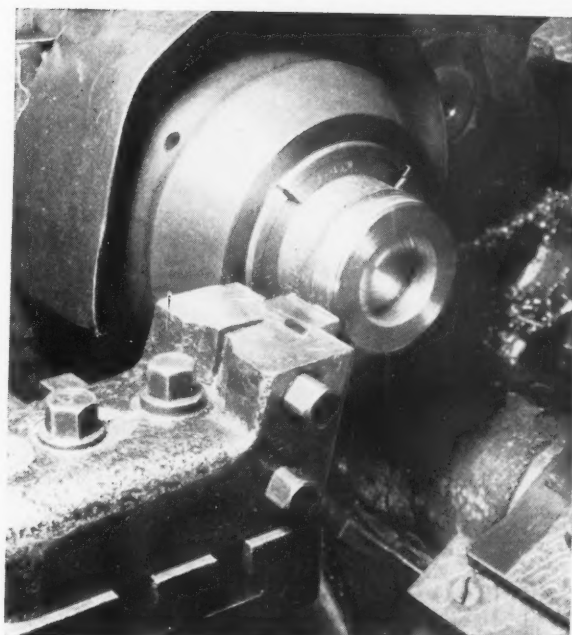
Subscription price \$4.00 per year U. S. and Canada (foreign \$5.00); single copies 35 cents

# American Standard Forming Tools Interchangeable

by

W. C. Mueller<sup>1</sup>

Chairman, Technical Committee 10,  
Sectional Committee on Small Tools  
and Machine Tool Elements



Courtesy Western Electric Company

## Dovetail Forming Tool in Action

*Our front cover shows a circular forming tool at work. Use of the American Standard, reducing the number of varieties of these tools, helps lower production costs.*

**R**EDUCTION in number of sizes of blanks for circular and dovetail forming tools from about 50 of each type to six of each is the result of a standard just approved by the American Standards Association. These sizes cover the requirements of 102 different automatic screw machines.

The primary purpose of this American Standard<sup>2</sup> is to establish interchangeability of forming tools among various makes of machines, thus reducing the number of tools and the blank sizes from which they are made. Prior to the acceptance of this standard each machine builder had his own design and size of blank, with the result that these tools would only fit the machine

for which they were designed. Thus a manufacturer having several makes of machines in operation was faced with an unnecessarily high tool investment because of the necessity of providing duplicate tools of the same sizes to suit the different makes of machines he was using.

<sup>1</sup>Manufacturing Engineer, Western Electric Company, Inc., Chicago, Ill.

<sup>2</sup>Circular and Dovetail Forming Tool Blanks (B5.7-1936).

For example, under the old set-up it was necessary for a user to carry numerous widths of circular cut-off tools, such as 3-64, 1-16, 5-64, 3-32, 1-8, etc., in as many blank sizes as he had different makes and sizes of machines. With the new standard it is only necessary to have the required widths in each group of blank sizes. A

Group Number	Type of Machine	Model	Maximum Capacity
2	3/8 Gridley	Model R 6	3/8
	1/2 Davenport	Model B	7/8
	9/16 Acme Gridley	Model C	9/16
	9/16 Gridley	Model R 6	9/16
	No. 0 Brown & Sharpe	Standard	5/8
	No. 0 Brown & Sharpe	High Speed	5/8
	5/8 Cleveland	Model A & B	3/4
	5/8 x 7/8 Cleveland	Model B	1-1/16
	No. 204 New Britain	—	5/8
	7/8 Greenlee	—	1
	7/8 x 1-1/4 Cleveland	Model A & C	7/8

## Machine Classification for Circular and Dovetail Tools

*The list shown here gives the machines of Group 2, only one of the six groups listed in the complete table in the American Standard. This table includes a total of 84 machines ranging from No. 00 Brown and Sharpe Standard to a 7 3/4 Cleveland Model A.*

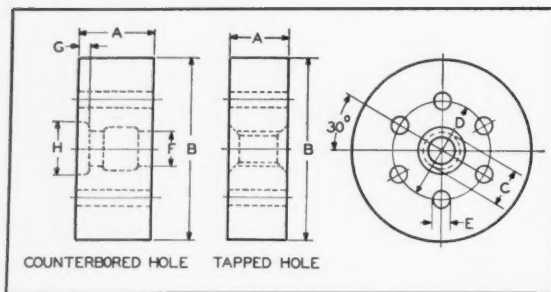


Fig. 1

### Dimensions of Circular Tools for Machines in Group 2

Group Number	Designation of Blank $A \times B$	Width of Blank $A$	Diameter of Blank $B$	Threaded Mounting Hole $C$	Adjusting Holes	
					Diam. Pin Circle $D$	Diam. $E$
2	2-1/4 x 3/8	3/8	2-1/4	1/2-13	1-3/8	3/16
	2-1/4 x 1/2	1/2				
	2-1/4 x 3/4	3/4				
	2-1/4 x 1	1				
	2-1/4 x 1-1/4	1-1/4				

similar reduction in quantity of commonly used chamfering tools in both circular and dovetail types is also made possible. Moreover, with tools made according to the new standard a job may be transferred from one make of machine to another without providing new forming tools.

The great reduction in tool blanks will effect a corresponding reduction in tool drawings because the tools will be interchangeable for machines of comparable stock capacity. There will also be an advantage from a toolmaking standpoint because blanks will be available commercially thus eliminating the necessity of making them individually. This should result in lower tool costs.

In this standard the machines have been classified into six groups according to stock capacity, each group taking a definite size of tool. Group numbers 1 to 6 inclusive have been arbitrarily assigned to identify the size of tool with the machines in which it is used.

Circular form tool blanks for machines in Groups 1 to 3 inclusive,  $\frac{3}{8}$  to  $1\frac{1}{2}$  in. maximum stock capacity, have a threaded type of mounting hole, while the three larger groups up to  $7\frac{3}{4}$  in. maximum capacity have a counterbored hole. Six adjusting holes have been provided for all blanks with the exception of those used for the smaller machines in Group 1. See Fig. 1.

The design of the blank for dovetail form tools is the same for all machines. See Fig. 2. However, two methods of adjusting have been provided for. A collar head screw will be used for

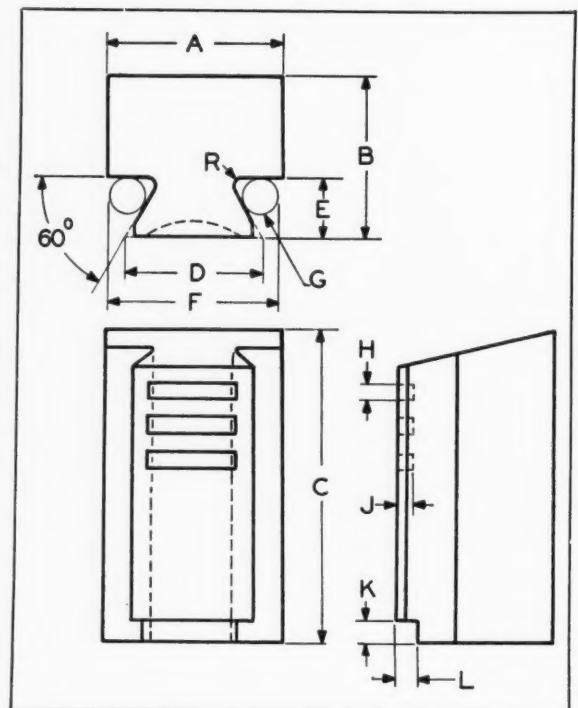
the average run of work while a hook bolt will be used where required for heavy work. See Figs. 3 and 4.

The following tables and figures of Group 2 are typical of the six groups into which the machines and tools have been divided and which cover the average range of screw machine work.

Committee No. 10 is now developing standards on holders involving those elements that affect the interchangeability of circular and dovetail tools for automatic screw machines. Standards are also being prepared for straight blade cut-off tools and their holders for hand and automatic screw machines. Consideration was also given to forming-tool planks and holders for hand screw machines but it was felt that there was little if any advantage to be gained in standardizing these tools.

### Standardized Dimensions of Dovetail Tools (See Table on Opposite Page)

Fig. 2





Group Number	Designation of Blanks No. $\times$ A	Width A	Thickness B	Length C	Dovetail			Across Plugs F	Plug Diam G	Adj. Slots		Optional Adj. Slot	
					Width D	Thickness E	Rad. R			Width H	Depth J	Width K	Depth L
2	$2 \times 1 \frac{1}{4}$	$1 \frac{1}{4}$	$1 \frac{3}{8}$	$1 \frac{1}{2}$	$\frac{7}{8}$	$\frac{3}{8}$	$\frac{1}{32}$	1.125	$\frac{1}{4}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{3}{16}$	$\frac{3}{16}$
	$2 \times 1 \frac{1}{2}$	$1 \frac{1}{2}$	$1 \frac{3}{8}$										
	$2 \times 1 \frac{3}{4}$	$1 \frac{3}{4}$	$1 \frac{3}{8}$										

### Dimensions of Dovetail Tools for Machines in Group 2

#### Methods of Adjusting Dovetail Tools

Fig. 3

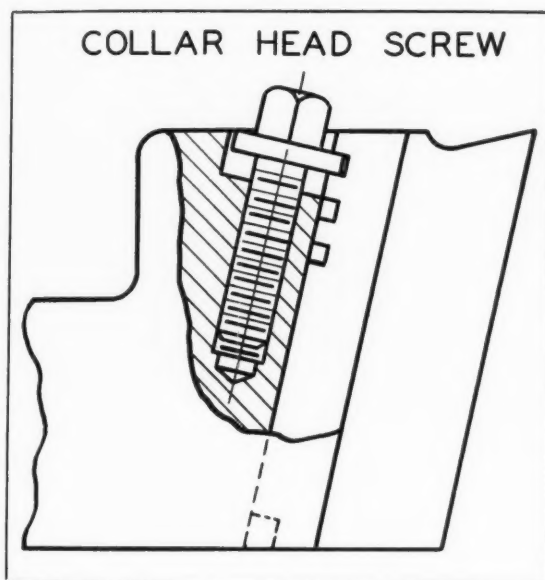
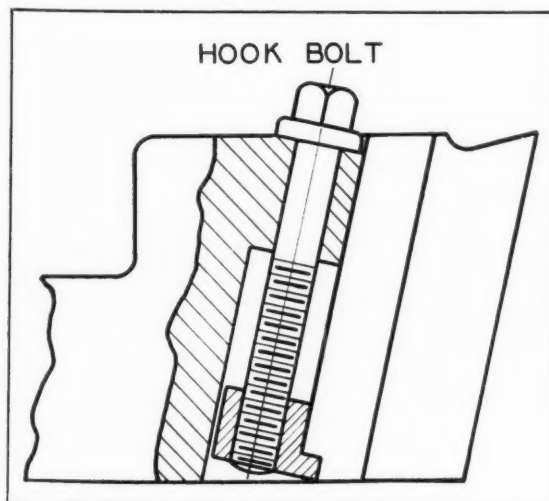


Fig. 4



### Standardize Tools for Automatic Machines

Interchangeability of forming tools, brought about by the new American Standard developed by the committee on Small Tools and Machine Tool Elements of the American Standards Association, facilitates replacement and decreases a company's capital investment in tooling equipment. Substantial savings in manufacturing costs result.

The American Society of Mechanical Engineers, the National Machine Tool Builders Association, and the Society of Automotive Engineers share responsibility for this standardization project.

W. C. Mueller, chairman of the technical subcommittee which prepared the standard, explains the important phases of it in this article. The members of his subcommittee are:

W. L. Barth, Standards Section, General Motors Corporation, Detroit, Mich.

A. E. Drissner, Vice-President, The National Acme Company, Cleveland, Ohio

William Hartman, Vice-President in Charge of Engineering and Manufacturing, The National Cash Register Company, Dayton, Ohio

W. P. Michell, Engineer, Mack Plant, International Motor Company, Allentown, Pa.

D. H. Montgomery, Vice-President, The New Britain-Gridley Machine Co., New Britain, Conn.

L. D. Spence, Charge Tool Design, Brown and Sharpe Manufacturing Co., Providence, R. I.

F. S. Walters, Supervisor, Small Tools and Supplies, Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa.

H. E. Wells, Assistant Superintendent, Tool Division, General Electric Co., Bridgeport, Conn.

Copies of the American Standard for Circular and Dovetail Forming Tool Blanks (B5.7-1936) are now available at 40 cents each.

Members of the American Standards Association are entitled to 20 per cent discount on American Standards ordered through the ASA office. Quantity prices are available.

## Mechanical Standards Committee Re-Elects Iddles, Morehead

The Mechanical Standards Committee, which heads and coordinates the program of the American Standards Association on mechanical standardization problems, held a meeting in New York April 20.

Alfred Iddles, Engineering Dept., Babcock and Wilcox Co., New York, was re-elected chairman for 1937. F. H. Morehead, Walworth Company, New York, was re-elected vice-chairman. Mr. Iddles represents the American Society of Mechanical Engineers, and Mr. Morehead the Manufacturers' Standardization Society of the Valve & Fittings Industry.

Members of the Executive Committee, who were re-elected for the year, are:

W. I. Cantley, mechanical engineer, Lehigh Valley Railroad Co., Bethlehem, Pa. (representing the Association of American Railroads)

J. H. Edmonds, general manager, Bethlehem Steel Company, Lebanon, Pa. (representing the American Institute of Bolt, Nut, and Rivet Manufacturers)

Frank O. Hoagland, master mechanic, Pratt & Whitney Company, Division of Niles-Bement-Pond Co., Hartford, Conn. (representing the National Machine Tool Builders' Association)

H. H. Morgan, manager, Rail and Fastenings Department, Robert W. Hunt Company, Chicago (representing the American Society for Testing Materials)

Clarence W. Spicer, vice-president, Spicer Manufacturing Company, Toledo, Ohio (representing the Society of Automotive Engineers)

John Gaillard, mechanical engineer, American Standards Association, is secretary of the committee.

The American Gear Manufacturers Association and the American Iron and Steel Institute recently appointed representatives on the MSC. B. F. Waterman, designer, Brown & Sharpe Manufacturing Company, Providence, R. I., was named to represent the A.G.M.A., with T. R. Rideout, Westinghouse Electric & Mfg. Co., Pittsburgh, as alternate. Charles M. Parker of the staff of the American Iron and Steel Institute is the Institute's representative.

The American Petroleum Institute, which has the appointment of a representative under consideration, was represented at the April meeting by A. D. Sanderson, Standard Oil Development Co., as a temporary delegate.

Members of the Mechanical Standards Committee are:

American Foundrymen's Association, *LeRoy M. Sherwin*

American Gear Manufacturers Association, *B. F. Waterman, T. R. Rideout (alt.)*

American Institute of Bolt, Nut, and Rivet Manufacturers, *J. H. Edmonds*

American Iron and Steel Institute, *Charles M. Parker*

American Petroleum Institute, *To be Appointed*

American Society of Mechanical Engineers, *Alfred Iddles, Walter Samans (alt.)*

American Society for Testing Materials, *H. H. Morgan, R. E. Hess (alt.)*

American Transit Association, *R. H. Dalglish, Frank T. Ward (alt.)*

ASA Electric Light and Power Group, *Edwin B. Rickets, Alexander Maxwell (alt.)*

ASA Telephone Group, *D. Levinger, J. R. Shea (alt.)*

Association of American Railroads, *W. I. Cantley, J. E. Ennis (alt.)*

Grinding Wheel Manufacturers Association, *A. Rousseau*

Heating, Piping, and Air Conditioning Contractors National Association, *H. M. Hart*

Manufacturers Standardization Society of the Valve and Fittings Industry, *F. H. Morehead, A. M. Houser (alt.)*

National Electrical Manufacturers Association, *Frank Thornton, Jr., L. F. Adams (alt.)*

National Machine Tool Builders Association, *F. O. Hoagland*

Society of Automotive Engineers, *C. W. Spicer, A. M. Wolf (alt.)*

U. S. Department of Commerce, National Bureau of Standards, *I. J. Fairchild, H. L. Whittemore (alt.)*

U. S. Navy Department, *Officer-in-charge, Specification Section, Design Division, Bureau of Engineering; Officer-in-charge, Design Section, Bureau of Ordnance (alt.)*

U. S. War Department, *Capt. Steven L. Conner*

## Revised Simplified Practice Recommendation Reduces Number of Sizes of Forged Axes

Twenty-four per cent, equivalent to 123, of the sizes listed in Simplified Practice Recommendation R158, Forged Axes, have been eliminated in a proposed revision submitted by the standing committee and now being circulated to all interests for consideration and approval.

The Axe Division of the General Tool and Implement Association proposed the original recommendation which became effective July 1, 1935. It lists patterns, range of weights, and grades for single-bit, double-bit, and miscellaneous types of axes.

Mimeographed copies of the proposed revision may be obtained from the Division of Simplified Practice, National Bureau of Standards, Washington, D. C.

# Research Permits Greater Speed with Safety In Standard Requirements for Elevators

**Tests on Safety Devices Give  
Data to Keep Elevator Safety  
Code Up-to-Date with Growth  
of Industry**

**ASA Committee Bases Ac-  
tion on Results of Research  
Program**

by

**John A. Dickinson<sup>1</sup>**

*Secretary, Sectional Committee on the  
Safety Code for Elevators, Dumbwaiters,  
and Escalators*

**I**F an elevator safety code is to give the maximum possible service it must not only keep abreast of the development of the art and at the same time not hinder a desirable new development, but it must also be based on sound engineering data.

## ***The Need for Basic Data***

When the Sectional Committee for the American Standard Safety Code for Elevators, Dumbwaiters, and Escalators was first appointed, the question of whether to include hoistway-door interlocks as a mandatory requirement for elevators was much debated.

In order that there might be sound engineering data upon which to base committee action, the National Bureau of Standards had a field survey made of several thousand devices of this kind located in a number of the larger cities. Where interlocks were found to be inoperative, the cause was determined, and tables were made showing the principal causes of failure of such devices.

A study was also made of available elevator accident statistics, and it was found that approximately three-fourths of all elevator accidents occurred at the hoistway door or as a result of falls through open doors.

The requirement for hoistway-door protection was included in the early draft of the Elevator Safety Code. Later this report was published as National Bureau of Standards Technologic Paper No. 202.

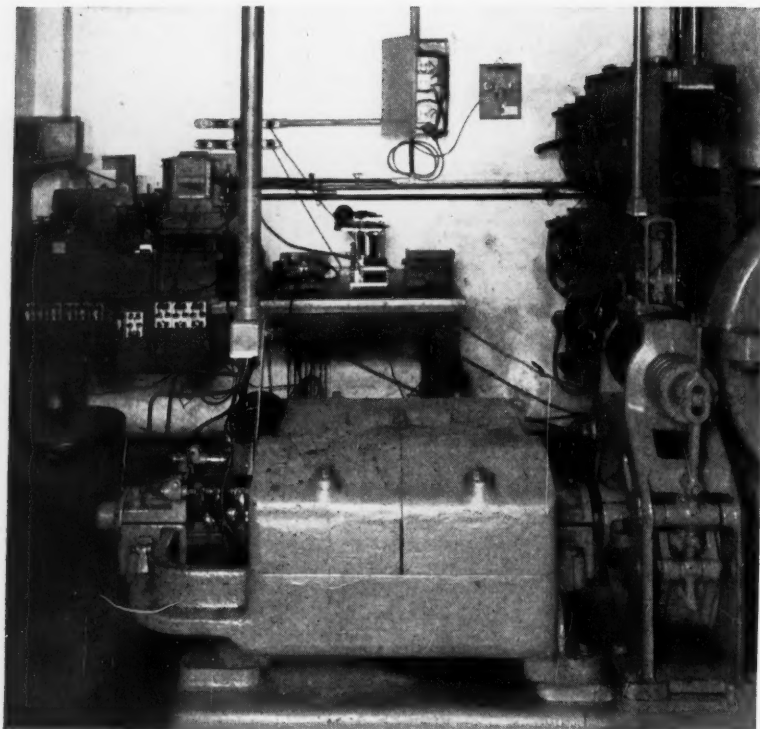
Today no manufacturer would install a modern high-speed passenger elevator without this protection, whether required by local regulations or not. In other words, the interlock has become a fundamental part of the elevator control system.

Baltimore, which was one of the first cities to adopt the new elevator code, tentatively included an interlock requirement which was made retroactive.

It is interesting to note that the attitude of the building owners was not antagonistic to these devices.

They felt, however, that if they were required to go to the expense of installing interlocks they should be given a reasonable assurance that the

<sup>1</sup>National Bureau of Standards, Washington, D. C.



*General view of the Elevator Research Fellowship Laboratory at the National Bureau of Standards showing hoisting machine, controller, oscillograph and master electrical tuning fork.*

devices installed would give satisfactory service for a period of years, because many of the interlocks then on the market were poorly designed and of rather flimsy construction. A building-owner group, comprising several associations, sent a delegation to Washington to discuss the question of tests of interlocks. Ultimately, after several conferences with the Director of the Bureau and the Secretary of Commerce, arrangements were made to test and certify such devices at the National Bureau of Standards.

The interlock tests which have been conducted at the Bureau since 1922 have done much to bring the interlock up to its present high standard of reliability. While the test specifications for interlocks have been modified slightly from time to time, they are essentially the same as they were in 1922.

#### ***Annual Test Required***

When the question arose as to whether annual tests of the under-car safeties were desirable (the claim being made that wear of parts due to these tests would adversely affect their performance under emergency conditions), the chief engineer of one of the companies represented on the committee conducted a series of tests which demonstrated that more than 150 stops were necessary to wear that particular safety device to the point

that the car could slide all the way to the pit. As the average life of an elevator is probably 20 or 25 years it was obvious that an annual safety test was not detrimental to a well-designed and constructed under-car safety, and the requirement for an annual test was retained.

A technical subcommittee was appointed to study certain parts of the Code and to make recommendations on engineering requirements. This subcommittee's findings, based on actual test results in some cases, were so sound that no essential change has been made in the rules during the 15 years that have intervened.

When the 1925 edition of the Code was prepared it became evident that, while type-approval tests of buffers and under-car safeties were desirable, there were insufficient data upon which to base type-test requirements. A subcommittee was then set up to make a thorough study of such devices, through a Research Fellowship at the National Bureau of Standards. This undertaking was financed by contributions from the elevator manufacturers, the manufacturers of elevator auxiliary equipment, and by insurance groups, both stock and mutual. The National Bureau of Standards contributed laboratory and shop facilities, and photographic and other skilled service.

A study of buffers covering a period of three years resulted in a test specification which took into account not only the effects on passengers riding a car during a buffer stop, but such prac-



tical questions as the allowable play of the plunger in its guides, the maximum allowable decrease in oil level for a given number of operations, the permissible change in performance due to the mixing of air with the oil which occurs to some extent in all buffers upon repeated operation, the ability of the plunger to return promptly to its fully extended position after the car has been raised, and the strength of the whole equipment as determined by an overload test at its maximum rated speed.

### ***Certify Buffers***

The above-noted requirements were incorporated in the 1930 edition of the Code, and certified buffers are now required in several cities, states and Federal departments.

A similar study of under-car safety devices was started, but was temporarily discontinued in 1933 due to lack of funds.

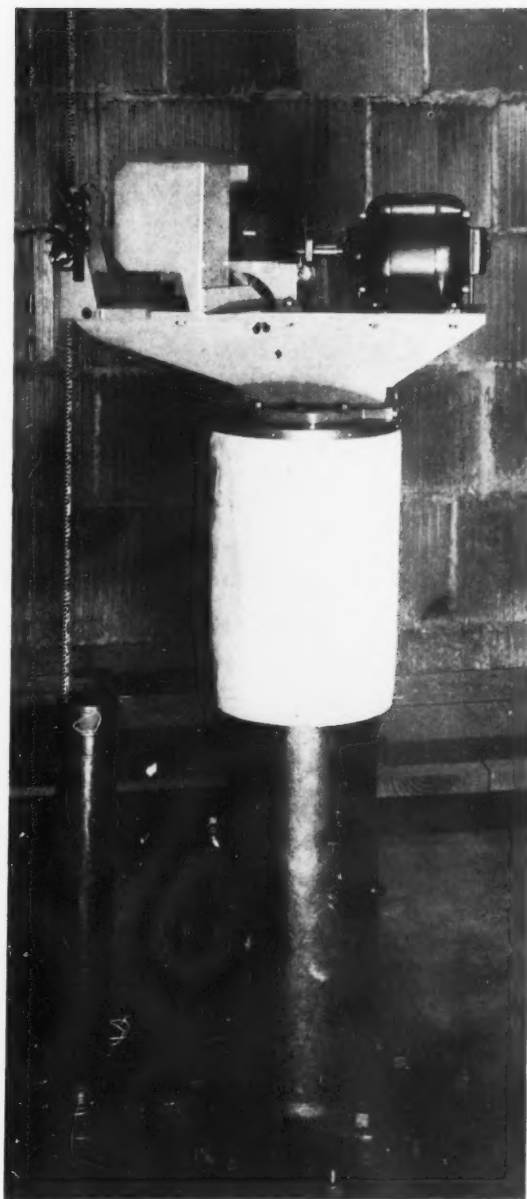
While the Research Fellowship was compelled to drop its work, research in certain lines has been continued. The National Bureau of Standards, in cooperation with the American Society of Mechanical Engineers, has recently completed an interesting investigation of the strength of worn wire ropes. The ropes were supplied by elevator, insurance, and mining companies. The John A. Roebling's Sons Company had previously published an article in *Wire Engineering* describing a method for determining the service life remaining in wire rope. The strength estimated from the Roebling charts proposed in that article were applied to over 200 worn ropes, and it was found that, if rusted or corroded ropes were excluded, the results were in close agreement with these Roebling charts, showing that this method is more accurate than the old "rule of thumb" for judging the strength remaining in a worn wire rope.<sup>2</sup>

The Bureau has also made a study of devices designed to maintain elevator cables at constant tension. While this study was not completed, in that the tension in the rope on the run of cables between the drive sheave and the counterweight was not determined, it did give valuable information on the ultimate strength of such devices and indicated the relative equalization of tensions in the section of cables between the driving sheave and the car for static conditions.<sup>3</sup>

A year ago the National Bureau of Standards equipped two new elevators out of four similar

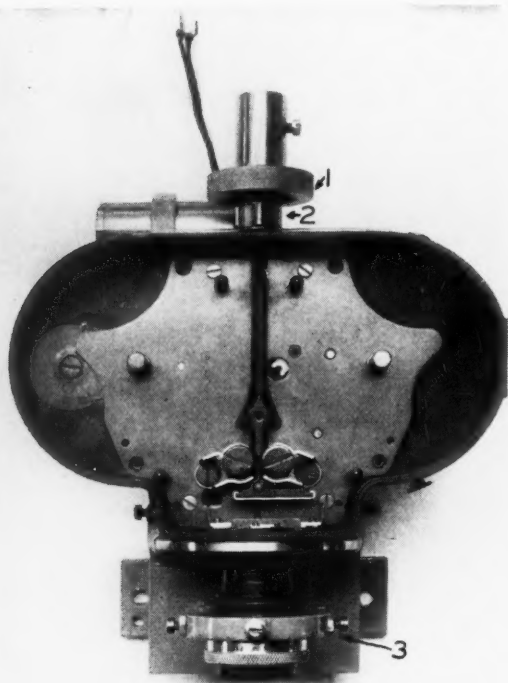
<sup>2</sup>National Bureau of Standards Research Paper No. 920: Inspection and tensile tests of some worn wire ropes.

<sup>3</sup>National Bureau of Standards Research Paper No. 912: Load distribution and strength of elevator cable equalizers.



***High-speed camera used to study performance of elevator safety devices***

***The camera, driven by a synchronous motor, takes 60 pictures a second of a tape marked in feet, tenths and hundredths. Each exposure is 0.00002 sec. The entire camera and drive are mounted on a buffer the plunger of which is supported on aluminum pins which will shear at 7.5 gravity so that the equipment is protected against an abnormally short stop.***



*Top view of camera showing (1) clutch, (2) solenoid-operated brake, and (3) independent lens mounting.*

installations with cable equalizers, leaving the other two with the conventional cable hitch. The machines and controllers were equipped with mileage indicators and stop counters, so that actual life records may be obtained on all cables, and after a period of years any value of such devices in prolonging cable life may be determined. Devices of this kind have also been installed on elevators in a number of other Government buildings and records of cable life are being carefully compiled. Results of such tests will, in all probability, be made available to the Sectional Committee for the Elevator Code.

#### ***Keeping Up With the Development of the Art***

In addition to containing rules based on sound engineering data, it is also important to keep a code abreast of the development of the art. Rules which have been outgrown by the industry rapidly become unenforceable. Traffic regulations are a case in point.

Prior to 1913, the legal rate of speed for motor vehicles in the City of New York was eight miles per hour. At that time one of the large speedometer manufacturers gave a very convincing demonstration of the absurdity of this regulation. A three-ton truck body was fitted with a gigantic speedometer head, some seven or eight feet in diameter, with numbers more than a foot high, which indicated the speed accurately. The truck was then driven through the busiest streets of New York—Broadway, Twenty-third, Fifth Avenue, Thirty-fourth, Forty-second, the most crowded thoroughfares of the city—the speed being maintained at exactly eight miles an hour. Private automobiles, taxicabs, and delivery wagons honked impatiently behind it as it held its steady but snail-like pace through the streets.

A large sign on the truck called attention to the fact that "this machine is being driven at the maximum allowable legal speed." A very few weeks after the appearance of this truck, the speed limit was raised to a reasonable value.

#### ***Increase Safe Speed***

In the first edition of the Elevator Safety Code (1921) the curves for the factor of safety of cables extended up to 800 feet per minute or 100 feet per minute more than the maximum permitted by the New York City Elevator Code then in force. Before the next edition was printed in 1925 there were several installations running 800 feet per minute. The 1925 code carried its curves to 900 fpm, but before the next revision there were installations running 1000 fpm. The 1931 edition gave curves to 1500fpm, and as a proof that history repeats itself, we find today cars being run at speeds of 1200 and 1400 fpm, and even 1600 fpm in one or two experimental installations. The 1935 code, however, does not carry the curves beyond 1500fpm, as it is doubtful if allowable speeds will be increased appreciably in the next few years. The reasons are three-fold:

1. The change in air pressure on passengers' ears at the higher speeds is unpleasant. For example, in the Empire State Building the change of air pressure from the street level to the top of the travel of the first lift corresponds almost exactly to 1 inch of mercury, or a decrease of 3.3 per cent. As this change takes place in somewhat less than a minute, it is quite annoying to some passengers. For this reason, pilots of air liners are careful to ascend and descend at rates of less than 1000 feet per minute.

2. As the travel necessary to build up these high speeds increases as the square of the speed (the maximum allowable acceleration being limited by physiological effects), high speeds may

be used only where exceedingly high rises are encountered. For a speed of 1600 fpm, the accelerating distance is considerably over one hundred feet and the stopping distance is at least 30 per cent of the accelerating distance so that a travel of about 200 feet is required to start, build up a speed of 1600 feet per minute, and then stop. An increase to 2000 fpm would increase the travel distance more than 50 per cent, or a distance in excess of 300 feet would be required to start and stop at this higher speed.

3. The power necessary to accelerate the masses involved becomes prohibitive. In some actual installations the power required to accelerate the car, hoisting ropes, counterweight, and rope compensation is several times the power necessary to handle the fully loaded car at contract speed. For a 2000-ft rise (which is about the maximum for which code factors of safety could be met with a car of usual steel construction) it has been estimated that the accelerating current would be *ten times* the normal running current.

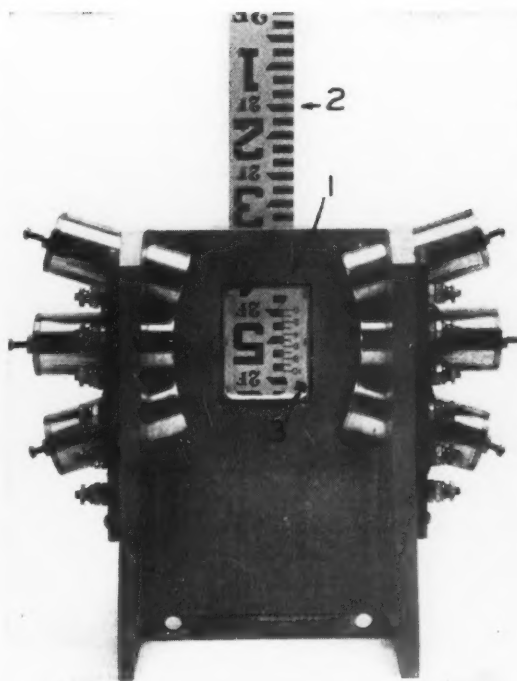
One should not conclude that higher-speed elevators will not be built, but rather that present maximum speeds are about the highest that are practical until much higher buildings are designed and light-weight cars are developed.

Increasing speeds necessitate additional requirements of safety equipment. For example, at high speeds it has been found quite impractical to stop the governor rope suddenly. The type of rope-grip jaw used for slower speeds will, at the speeds used in some of the high-rise express elevators, act like a pair of cutters, and cases are on record where a governor rope has actually been severed by the sudden tripping of a governor. For high-speed equipment it has been found necessary to provide a long, parallel type of rope-grip jaw rather than two small eccentrically mounted circular arcs. The long parallel jaws distribute the clamping force over a considerable section of the rope and permit a certain amount of "pull through," thus allowing the energy of the moving governor rope to be absorbed gradually. The momentum of 1000 lb of governor rope running 1000 fpm, or faster, is very considerable.

The above-noted items, which are of little importance at lower speeds, become major problems at higher speeds. If a code is to be kept abreast of the development of the art, engineering research becomes a necessity.

It is interesting to note that if we consider only the principle that a code must be kept abreast of the industry, we again reach the conclusion that engineering research is indicated.

Unfortunately, the research work at the National Bureau of Standards on under-car safety de-



#### *What the camera sees.*

(1) *Field of view of the camera. The vernier scale on the right of the opening permits the inverted tape (2) which is suspended from the top of the hoistway to be read to 0.001 ft. Quick-acting solenoids which project their armatures into the opening (3) may be connected to suitable circuits to permit certain events in the cycle of operation to be recorded as to time and relative car position. The tripping of the governor, first movement of the safety drum and similar events may be recorded to the nearest 1/60 second or 0.001 ft of travel.*

vices had only been started when it became necessary to discontinue it for lack of funds, but it is hoped that eventually this work can be resumed and test requirements similar to those for oil buffers may be worked out.

#### *Future Problems*

While the Code sets limits of slide of the car under action of a safety device for various speeds, such a sliding distance does not in reality measure the retardation applied to the car during a stop.

The problem of performance specifications for under-car safety devices is much more difficult of solution than the corresponding one for oil buffers, for the reason that the variables in the case of oil buffers are comparatively few, and there is no particular difficulty about studying any one of these variables under controlled con-

### **New Edition of Elevator Safety Code Now Before American Standards Association**

Increases in speed of passenger elevators from 800 feet per minute in 1921 to 1,500 feet per minute in 1937 have been accepted as safe practice because of research work on elevator safety devices by the National Bureau of Standards for the American Standard Safety Code for Elevators, Dumbwaiters, and Escalators.

This standard serves as a guide to state and municipal authorities in drafting regulations for elevator installation and operation, and also as a standard reference for safety requirements for elevator manufacturers, architects, and consulting engineers.

A new edition of the code, including new material on safeties, terminal stopping devices, buffers, and interlocks, is now before the American Standards Association for approval. It has already received the endorsement of a representative committee of building, manufacturing, insurance, and governmental interests. The National Bureau of Standards, the American Institute of Architects, and the American Society of Mechanical Engineers, which directed the work of the committee, submitted the revised code to the ASA with their joint recommendation for approval.

Because in tall buildings, elevators are the most important, and often the only, practical means of exit in an emergency, special provisions for protecting elevators against fire hazards have been recommended in the proposed revision.

Former editions of the Safety Code for Elevators, Dumbwaiters, and Escalators have been widely accepted by governmental authorities in building regulations. The present revision of the code, which was started in 1921 and revised in 1925 and 1931, recognizes the importance of keeping such regulations up-to-date to take advantage of new scientific developments both in construction and safe operation of elevators.

ditions. In the case of an under-car safety device the variables are numerous, and it is almost impossible to hold all but one of these factors constant while studying known variations in that one.

#### ***Tests Difficult***

For example, the surface condition of the safety jaws themselves will change during a stop. If the rail is highly polished and the load is rather light and the speed low, so that the car stops relatively quickly, the surface of the safety jaw may be made smooth by its friction on the guide rail. On the other hand, if the rail on which the jaw operates is a new rail, lacking the polish which years of operation of the elevator will give it, the jaws may be roughened by contact with the rail surface so that the next stop will be more abrupt; and if the stop should happen to be made on that portion of a rail roughened by a previous safety stop, the stop will be extremely sudden. Further, the wear of metal from the safety jaws with each stop will have some influence, in most cases slight, on the next stop.

The fact that with the usual type of wedge-clamp safety device, the tension in the governor rope is the motive power for applying this under-car safety, means that every link in the chain of operations from the tripping of the governor to the stopping of the car must take place properly or the car may fail to stop, or, conversely, may stop too suddenly.

#### ***Effect of Lubricants***

Effect of solid lubricants on the rail surface is another subject which must be investigated. The usual under-car safety device is designed to operate at pressures sufficiently high to squeeze out the film of oil or grease between the jaws and the rail. Solid lubricants, however, are not squeezed out by the pressure, and prevent the normal metal-to-metal contact under which the safety device is designed to operate. Obviously, if the rail surfaces will not give the proper stopping surface for the under-car safety device, such equipment may be practically useless. A more or less parallel case would be that of an automobile equipped with very powerful and perfectly equalized brakes. On a dry road, under normal conditions, perfect stopping may be accomplished. However, a very thin film of ice that will prevent physical contact of the automobile tires with the pavement material may offset these perfect brakes and make driving exceedingly dangerous.

One of the interesting new developments is the



use of roller guide shoes, which accomplish much the same result as the "knee-action" wheel suspension for automobiles. They are particularly advantageous where existing rails are re-used when an elevator installation is replaced. The use of roller guides permits unlubricated operation of the rail so that a reasonably uniform surface is always present to the safety shoes during an emergency stop.

The question of traction relation between various grades and types of wire rope and different types of sheave grooving is of the utmost import-

ance, and insurance interests have requested that a study be made of these relationships and the effect of wear on the ropes and sheaves.

The Sectional Committee for the Elevator Safety Code has in the past based its findings on engineering research and tests; and if the Code is to keep pace with the development of the art, such work should be continued. The 1937 edition of the Safety Code for Elevators, Dumbwaiters and Escalators, which is now almost ready for distribution, is a result in which research has played an important part.

## Standard Definitions of Terms Essential in New Industries

Lack of standard definitions of terms used in the motion-picture industry prevented a court decision on a contract April 20, when Judge Irving Lehman of the New York State Court of Appeals admitted that he was "unschooled" in the language used in the contract and added that before an opinion could be given the court would have to "be made literate in the language."

The case was based on a contract for the rental of moving pictures. The defendants, doing business as Springer & Cocalis, Springer Cocalis Circuit, Inc., and Trio Consolidated Corporation, were sued by Fox Corporation. The Appellate Division dismissed the complaint. The Court of Appeals reserved judgment on the findings of the Appellate Division.

The controversy hinged on the question of "overage" and whether it should be paid on a group of pictures or on individual films. The contract is a printed form with typewritten interlineations.

"The parties who made the contract presumably understood the meaning of the words they used," Judge Lehman said. "We accept the meaning which the parties agree the words were intended to have. We are without guide in arriving at a construction of words where there is disagreement between the parties as to the meaning which they were intended to convey."

### Need Dictionary

"The courts endeavor to apply the definitions accepted by both parties, though such definitions may be unknown to lexicographers. The parties may, if they choose, use their own special dictionaries, but when they ask the uninitiated to construe their contracts they must furnish them with

dictionaries they have used. They have not done so in this case."

Similar difficulties have frequently arisen in new industries when the language used has grown up without general agreement as to the meaning of the words. Recently, a standard approved by the American Standards Association provided a dictionary of terms to prevent this confusion in the relatively new science of acoustics. The American Standard for Definitions of Acoustical Terms was agreed upon by representatives of the various interests concerned in acoustical development, who gave careful thought to each term and definition in order that words already in use in other fields with slightly different meanings might not slip into the new language.

## National Bureau of Standards Calls Conference on Corrosion

Subjects affecting standardization of underground piping systems will be discussed at a conference on corrosion to be sponsored by the National Bureau of Standards during October or November, 1937. Exchange of ideas among those engaged in investigation or mitigation of underground corrosion will be the purpose of the conference. Only hitherto unpublished papers will be presented, and attendance will be limited to those who have contributions to make.

Topics suggested which will have a bearing on standardization are:

Methods for determining the corrosivity of soils  
Methods for determining the condition of pipe lines  
Tests and specifications for pipe coatings

Any one wanting to take part in the conference should notify K. H. Logan, National Bureau of Standards, Washington, D. C., indicating the subject or general nature of the contribution he wishes to make. He should also indicate his preference as to the date of the conference.

## A.S.T.M. Proposes Specifications For Use by Large Gasoline Buyers

**L**ARGE purchasers of gasoline can now refer to proposed specifications prepared by an authoritative technical organization, the American Society for Testing Materials, in preparing purchase specifications for gasoline bought under contract.

The proposed Specifications for Gasoline (D439-37 T) have just been authorized for publication as tentative by the A.S.T.M. in accordance with recommendations of its Committee D-2 on Petroleum Products and Lubricants.

They are not a definition of gasoline, the A.S.T.M. announces, nor do they include all types of gasoline or motor fuel satisfactory for motor vehicles because certain equipment or conditions of use may require fuels having special characteristics. They do, however, provide three types of gasoline.

Type A, for use under normal conditions

Type B, for use where a gasoline of greater over-all volatility than Type A is desired

Type C, for use where a relatively non-volatile fuel is desired

The specifications state the required properties of gasoline at the time and place of delivery in bulk. They provide for an automatic variation by the seller to meet the requirements of seasonal changes in temperature depending upon the season and the locality in which the product is to be used. This is done by providing three vapor pressures and 10 per cent distillation points for each type specified and by differentiating the use of these variations according to the months of the year and the geographical location by states.

### *Minimum Octane Number*

It is indicated in the requirements that the purchasing agency shall state the minimum octane number as agreed upon with the seller; specify the volatility Type A, B, or C, desired; and indicate the season and locality in which the fuel is to be used. The various requirements given in the new tentative standard, to be determined in accordance with A.S.T.M. test methods, involve distillation, vapor pressure, octane number, corrosion, and gum. Thirty-nine of these A.S.T.M. methods of test for petroleum products and lubricants have been approved by the American Standards Association.

Table I provides a schedule for geographical seasonal variations and represents the time and place and use of the gasoline.

In 1936 the American Transit Association re-

quested the development under the procedure of the American Standards Association of specifications for gasoline for use in heavy-duty vehicles. This request was referred to Technical Committee A on Gasoline of A.S.T.M. Committee D-2 on Petroleum Products and Lubricants for the formulation of a draft standard. Technical Committee A had been at work for some time on the preparation of specification requirements for gasoline.

The requirements for Type C gasoline in the new tentative specifications are intended to provide motor fuel of the type requested by the American Transit Association. It is expected that these tentative specifications will be considered by the Sectional Committee on Petroleum Products and Lubricants of the American Standards Association at its next meeting in New York the last week in June.

Copies of the specifications are available in pamphlet form from the American Society for Testing Materials, 260 S. Broad Street, Philadelphia, at 25 cents each.

## Heating and Ventilating Guide Uses American Standard Drawing Symbols

Drawing symbols for heating, ventilating, and air conditioning applications have been revised and amplified to include the piping and fitting symbols recommended by the American Standards Association for drafting room practice in the new 1937 *Guide* of the American Society of Heating and Ventilating Engineers, just published.

Outstanding innovations in the field have been incorporated in the revised *Guide* to assist those specializing in heating, ventilating, air conditioning, and allied industries. Newly recognized standards of the profession have been added to the text section, and recent research developments have been summarized.

The *Guide* comprises 44 chapters of 808 pages of Technical Data Section and 316 pages of Catalog Data together with the Roll of Membership of the Society and complete indexes to the Technical and Catalog Data Sections.

Copies are available at \$5.00 each from the American Society of Heating and Ventilating Engineers, 51 Madison Avenue, New York.

# New Standard for Injury Statistics To Give Data for Accident Prevention

by

**Leonard W. Hatch<sup>1</sup>**

*Chairman, Sectional Committee on  
Compiling Industrial Injury Rates*

**Standard Compilation of  
Accident Rates Permits Com-  
parison of Statistics**

**"Disability" Replaces "Loss  
of Time" as Criterion**

A NOTABLE example of the American Standards Association's usefulness is displayed in an unusual field with the approval of the American Standard for Compiling Industrial Injury Rates.

Standardization of statistical methods might seem to be a field beyond the scope of the American Standards Association. It is, however, so closely related to the development of standard safety codes, in which the ASA's work has long been conspicuous, that it becomes a natural and logical supplement to this safety code program.

Two statistical tools are indispensable for an intelligent attack on industrial accidents. One of these is accident-cause analysis; the other is accident rates.

## ***Accident Rates Basic***

The latter is the more basic of the two. Only by means of accident rates can any agency, public or private, appraise the seriousness of its prevention problem, determine where that problem is most pressing, or measure its progress toward safety, either from period to period in its own organization, or in comparison with the progress of others. Only by comparison of accident occurrence (number of accidents) with exposure

to accidents (man hours of work), which is what a rate expresses, can any true measure of prevention problem or progress be made.

This is better understood today than it used to be. Some years ago an employer in New York State, who had begun to take his accident problem seriously and was seriously working for prevention, became much perturbed to discover that his count of accidents was rising. He called upon the State Department of Labor for aid to find more effective prevention measures, but upon examination the Department found that the rise in accidents had only accompanied an expansion of the force. In proportion to the number employed, the accident occurrence was actually declining. It needed an accident rate to show the true situation.

In recent years, the role of accident rates in the safety movement has been greatly enlarged as competition has become increasingly important in the movement. This competition has given rise not only to more and more comparison of experience on general principles, but also to contests staged in advance for which no equitable scoring is possible except in the form of rates.

The new American Standard for Compiling Industrial Injury Rates just approved by the American Standards Association is a revision of a standard which goes back some twenty years to the early days when the rapid spread of workmen's compensation laws was quickening, or in-

<sup>1</sup>Representative of the International Association of Industrial Accident Boards and Commissions; formerly a member of the New York State Industrial Board.

spiring, practical interest in accident prevention. Before the completion of this earlier standard, pioneer work was done in arousing interest in accident statistics in the steel industry and by the U. S. Bureau of Labor Statistics. It was developed by the Committee on Statistics of the International Association of Industrial Accident Boards and Commissions in connection with standards for other aspects of accident statistics. As finally developed it was published in 1920 in Bulletin 276 of the U. S. Bureau of Labor Statistics.

Six years later at a Conference on Industrial Accident Prevention called by the Secretary of Labor, discussion of accident statistics resulted in a resolution favoring revision of Bulletin 276. The resolution proposed that this revision be undertaken by a sectional committee of the American Engineering Standards Committee, now the American Standards Association.

This was finally arranged, and the project was started under the joint supervision of the International Association of Industrial Accident Boards and Commissions, the National Safety

### Industry, Labor, Government on Accident Statistics Committee

Insurance companies, state accident commissions and labor departments, outstanding industrial associations, and the Federal government were brought together by the American Standards Association to prepare the revised American Standard Method of Compiling Industrial Injury Rates (Z16.1-1937). Under the supervision of the International Association of Industrial Accident Boards and Commissions, the National Council on Compensation Insurance, and the National Safety Council, this representative committee agreed on a fundamental change in the basis on which accident statistics are compiled, substituting disability for lost-time as the criterion and recognizing temporary partial disability. The revised standard has been approved by the American Standards Association.

Members of the committee which agreed upon the new standard are:

**Leonard W. Hatch**, International Association of Industrial Accident Boards and Commissions, *Chairman*

**Cyril Ainsworth**, American Standards Association, *Secretary*

International Association of Industrial Accident Boards and Commissions, (Sponsor), *Evan I. Evans*, *O. A. Fried*, *Leonard W. Hatch*, *William J. Maguire*

National Council on Compensation Insurance (Sponsor), *H. F. Richardson*

National Safety Council (Sponsor), *C. B. Boulet*, *Lewis DeBlois*, *W. Dean Keefer*

National Safety Council, Metals Section, *E. F. Blank*

National Safety Council, Rubber Section, *R. L. Forney*

Aetna Life Insurance Company, *Paul Dorweiler*  
American Gas Association, *E. P. Durfee*, *James B. Douglas* (alt.)

American Iron and Steel Institute, *Harry A. Schultz*

American Petroleum Institute, *H. N. Blakeslee*

American Statistical Association, *Eugene B. Patton*

Association of American Railroads, Operating Division, Safety Section, *T. H. Carrow*

Electric Light and Power Group, *C. R. Beardsley*, *A. B. Campbell* (alt.)

International Association of Governmental Labor Officials, *J. H. Hall, Jr.*

Interstate Commerce Commission, *Edward Crane*

Liberty Mutual Insurance Company, *David S. Beyer*

Lumber Mutual Casualty Company, *H. G. Wiberg*  
Metropolitan Life Insurance Company, *Robert J. Vane*

National Bureau of Casualty and Surety Underwriters, *W. M. Graff*, *C. G. Van der Feen* (alt.)

National Coal Association, *J. William Wetter*

National Electrical Manufacturers Association, *G. E. Sanford*

New York State Department of Labor, *Eugene B. Patton*

New York State Industrial Board, *L. W. Hatch*  
New York State Insurance Fund, *Grady H. Hipp*

Ocean Accident and Guarantee Corporation, *Dan L. Royer*

Ohio Industrial Commission, *Evan I. Evans*

Ontario Workmen's Compensation Board, *T. Norman Dean*

Pennsylvania Department of Labor and Industry, *Harry Hoyle*

Portland Cement Association, *H. A. Reninger*

Travelers Insurance Company, *H. W. Heinrich*

U. S. Department of Agriculture, *David J. Price*

U. S. Department of Interior, Bureau of Mines, *W. W. Adams*

U. S. Department of Labor, *S. W. Wilcox*

U. S. Department of Labor, Bureau of Labor Statistics, *Sven Kjaer*

U. S. Navy Department, *Wm. P. Biggs*

Utah Industrial Accident Commission, *O. F. McShane*

Wisconsin Industrial Commission, *O. A. Fried*

Members-at-large, *M. G. Lloyd*, *Leifur Magnusson*

**Copies of the new standard are available at 20 cents each.**





*Courtesy Safety Engineering*

**Hands may be crushed between the rods if work is handled this way.**



**With proper instructions. The workman protects his fingers by placing them on the outside, away from danger.**

***When the cause of accidents is known, precautions can be taken to prevent them.***

Council, and the National Council on Compensation Insurance.

This appeal to the Association and this triple sponsorship were for two reasons.

In the first place, standardization of accident statistics as an indispensable aid to accident prevention was a natural and logical supplement to the standardization of safety codes in which the ASA was already engaged.

In the second place, accident prevention is a concern of industry and insurance companies as well as government agencies. The fact that through the ASA all interests concerned in accident prevention could be brought together promised to secure the best talent for developing a statistical standard as an accident prevention tool and assured the widest possible use of the statistical standards arrived at.

### ***ASA Assures Broad Representation***

The broad representation of interests—government, industrial, and insurance—which ASA procedure assures, is notably illustrated in this project.

This revised standard is the product of four years of intensive study and threshing out of differences in a sectional committee of 44 members

embracing the widest possible representation of all points of view, following several years of study by subcommittees.

An original draft by a subcommittee, submitted in 1932, proposed relatively unimportant changes from the provisions concerning rates in Bulletin 276. That proved, however, to be only a starting point for discussion.

From amendments or additions subsequently proposed, the draft finally agreed on in 1936, which embodies important changes and improvements as compared with Bulletin 276, was evolved. Every one of the details in the present standard has been given painstaking study and there has been a careful refinement in form and phrasing of definitions and rules throughout.

One development stands out as the most important advance achieved by this new standard. This has to do with the accident occurrence side of an accident rate formula.

On the other side, that of exposure to injury, there has never been much difference of opinion. The measure of exposure is, naturally, man hours of work, and the figure for this for a given field of exposure should be all-inclusive.

On accident occurrence, however there has always been a great deal of controversy over what accidents should be included, and what limitations, if any, should be set on accidents to be

included. It was over this that the sectional committee had most of its controversy, but finally reached an agreement which marks a notable advance as compared with Bulletin 276.

This outstanding improvement has to do with the scope of the definitions for classes of injuries. The difference is in regard to temporary injuries. Those causing death, permanent-total, or permanent-partial disabilities are equally recognized in both the new standard and the old. The old standard differentiated between temporary disabilities on the basis of only two elements,

whether there was loss of time from work, and whether the loss of time extended beyond the day of injury or not. There was no recognition of temporary partial disability.

### ***Recognizes Partial Disabilities***

The new standard remedies this defect and recognizes, just as every compensation law does, temporary partial disabilities as a distinct class. The failure of the old standard to deal with temporary partial disabilities grew out of its employment of "loss of time" as the basic criterion. Loss of time occurs only in total disability, but an injured employee may not lose time but may nevertheless be partially disabled.

The new standard remedies this by discarding as criterion the loss of time and substituting the causing of disability. In a word, the new standard employs the complete criterion of "disabling" in place of the incomplete one of "lost time" in its basic definitions.

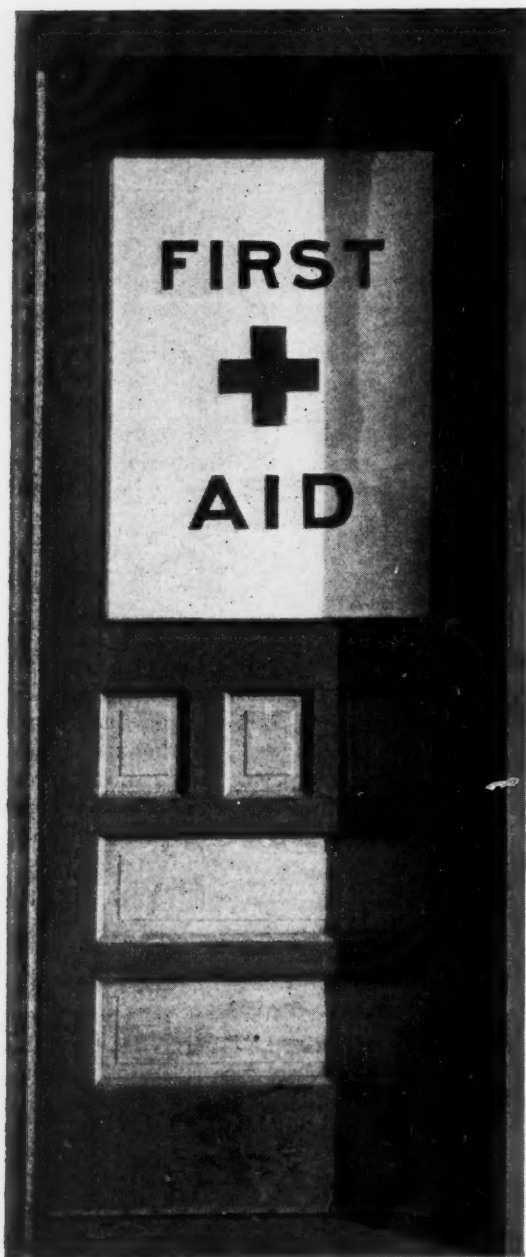
But while it corrects and completes the enumeration and definition of the classes of disability which must be distinguished in compiling accident rates, the new standard does not depart from the old as to what classes shall be included as a rule for all rate-compilation practice.

It still provides that temporary partial disabilities are excluded as before. There was long debate in the committee over this exclusion but it was finally agreed upon as best for standard practice everywhere at the present time.

At the same time, however, a recommendation that such rates be compiled by individual agencies able to secure the necessary data recognizes that from a scientific point of view it is legitimate to include that class of accidents in the rates whenever practicable. Such compilation should be supplementary, however, and should be excluded whenever the rates are to be used for comparison.

### ***Basic Definitions Important***

The fact that temporary partial disabilities are still to be excluded from rates as universal practice makes the new standard's improvement in basic definitions all the more important, not simply as a matter of theoretical completeness or accuracy but as assuring uniformity in practice at precisely the point where the old standard of Bulletin 276 left a loophole for variation. This loophole was the chief defect in the old standard and was the result of its failure to apply more than "loss of time" as the test of inclusion or exclusion in rates of temporary disabilities. That failure left the door open for transfer of injured employees who did have to lose time from their regular jobs to other regular or made jobs in order to keep them out of the category of lost-time cases.



As a matter of fact, experience had shown that inequalities and even unfairness of practice in this matter had developed, whether inspired by earnestness in safety contests, cost of compensation, therapeutic value, or liberality toward personnel, it is not necessary to discuss here.

This defect is removed and the loophole is closed in the new standard, because its definitions of temporary total and temporary partial disability require only the simple but specific test as to whether or not the disability is from the regular job, or from some other regularly established job, or from both. If it is, it falls definitely into the temporary total or temporary partial disability class and so must be counted in the rate. The same searching clarification and definite specification has been applied all through the new standard, but it is in the clearing up of this one shortcoming of the old standard that it is likely to contribute most substantially to greater uniformity of practice.

### ***Improved Method***

In this standard the American Standards Association provides an improved accounting method for use of all agencies concerned with prevention of industrial injuries. The safety movement is now largely past the stage of having chiefly to inspire to the "doing of something" about accidents in general. It has now the more complex and difficult task of inspiring the "doing of something" to prevent accidents. Refinement of technique is the present great need and great opportunity. This new standard, built upon but stepping forward from the pioneer standard in Bulletin 276, is a contribution to that end.

Coincident with its work on the standard for rate compilation, the sectional committee has had in hand a revision of the code for classification of causes of industrial accidents in Bulletin 276. It has thus been engaged in developing the second of the two leading branches of statistical accounting needed for intelligent prevention work, namely, analysis of causes of industrial injuries. Useful as the cause classification of Bulletin 276 has been (and as the pioneer in that field its merit has been great) experience has demonstrated that it has serious defects. These have been chiefly due to its failure to go sufficiently beneath the surface to get at the primary elements of causation which must be dealt with if the ultimate effects in accidental occurrence and in injury are to be forestalled.

A subcommittee has prepared a new proposed cause code which in many ways embodies new approaches to the problem and more thoroughgoing definition and analysis of accident causes. This proposed code has been considered by the section-



*Courtesy Hysen, Wescott & Dunning, Inc.,  
in Safety Engineering*

***Accidents do happen despite precautions. Therefore, many industrial organizations have well-equipped first-aid stations and trained attendants to see that proper treatment is given, a first step in securing adequate accident statistics.***

al committee and some of the details are now being revised by a subcommittee.

After this revision, it is planned to publish the code in tentative form for study, experimentation, and criticism. It is hoped to determine particularly how practical it is to secure in accident reports the details which will be required if the causes of accidents are to be determined as completely and scientifically as this proposed code contemplates.

The code has been developed to afford an ideal analysis to throw most light on the causes which must be reached by preventive efforts. That much has already been accomplished. It remains to work out the necessary adaptation to the practical necessities of accident reporting to complete this constructive and forward-looking project.

## Safety Pilot Required, Gas Association Decides

Basement furnaces and floor furnaces submitted and approved by the American Gas Association with safety pilots as required equipment must not be sold as approved furnaces without the safety pilot, it was decided by the Sectional Committee on Gas-Burning Appliances, A.G.A. Approval Requirements Committee, at its meeting January 15. All basement furnaces and automatically or remotely controlled floor furnaces approved by the American Gas Association must be equipped with safety pilots after January 1, 1938, the committee decided. Some of these furnaces have been approved without safety pilots and these may be sold as approved furnaces until January 1, 1938.

Because of the danger of fire from unvented furnaces, which are particularly susceptible to over-rating, and which present an especial hazard when furniture is placed over air registers of floor furnaces, the committee decided that all floor furnaces must be vented in order to receive A.G.A. approval.

Revised tables of required tubing dimensions to include tubing in 1/16 inch sizes were approved.

The committee also approved a revision to the continued operation tests for manually operated (push-button) types of automatic main gas-control valves specifying an opening and closing test of 25,000 rather than 50,000 cycles.

## British Revise Standard Electrical Dictionary

A revised edition of the British Standard dictionary to standardize and coordinate the technical terms used in electrical engineering in the British Empire has just been published by the British Standards Institution.

The terms include those which have been adopted in the international vocabulary now being prepared by the International Electrotechnical Commission. The definitions differ in actual wording in some cases but are technically in accord with the international definitions.

They are grouped according to the particular branch of the electrical industry in which they are used. Those common to two or more branches are in most cases given in Section 1 (General).

Representatives of outstanding scientific and industrial organizations and of Government departments met together to agree upon the defini-

tions and terms to be included, covering all phases of electrical science and industry.

The British Standard Glossary of Terms Used in Electrical Engineering (B.S.S. No. 205-1036) may be ordered through the American Standards Association at \$2.50.

## A.S.T.M. Publication Gives Methods For Chemical Analyses of Metals

All of the standard methods of chemical analyses of the ferrous and non-ferrous metals prepared by committees of the American Society for Testing Materials have been published by the A.S.T.M. in a single volume.

These standards include four methods for analyzing ferrous metals, twelve for non-ferrous metals and alloys, and three methods of quantitative spectrochemical analysis of non-ferrous metals. Included in the volume are amplified and modernized methods of chemical analysis of steel, cast iron, open-hearth iron, and wrought iron. These new combined methods were developed to provide methods for the determination of important elements in plain and alloy steels and irons.

Methods for the sampling and analysis of several ferro-alloys are included.

The section on non-ferrous metals gives methods for the analysis of bearing metals, brasses and bronzes, aluminum alloys, pig lead, slab zinc, nickel, electrical-resistance alloys, and silver solders.

Copies of this 250-page publication can be obtained from the American Society for Testing Materials at \$2.50 in cloth binding; \$2 in heavy paper cover.

## Printers' Ink Tells About Descriptive Labeling

Descriptive labeling of canned goods has been widely adopted according to a survey by C. B. Larrabee, published in the March 4 issue of *Printers' Ink*.

"Descriptive labeling is now being used by a sufficiently large number of canners so that its advantages and disadvantages can be set against those of grade labeling," Mr. Larrabee says. "The canners think that their system is greatly superior. The consumer organizations and Government officials disagree. The consumer now has the opportunity to judge."

The survey gives examples of products using descriptive labeling and how the descriptions are used for different types of products.



## Government's Standards Section Collects Data on Consumer Goods

**Makes Information Available for ASA Consumer Goods Project**

**Is Preparing Manual of Consumer Commodity Specifications and Comprehensive Report on Consumer Standards**

by

**S. P. Kaidanovsky**

*Chief, Standards Section  
Consumers' Project,  
U. S. Department of Labor*

**I**NDUSTRY has long recognized the value of standardization in engineering and manufacturing. Nearly every item of material is bought by industry on the basis of purchase specifications formulated by its engineering and purchasing departments.

The Federal Government has also recognized the advantage of buying on this basis and is making all purchases according to standards and specifications. States and cities are using specifications more and more when making purchases.

For the ultimate consumer, educational and professional organizations, such as the American Home Economics Association, the American Association of University Women, National Congress of Parents and Teachers, National League of Women Voters, and others have established committees for the promotion of standards and labeling of consumers' goods.

In addition, several Bureaus of the Federal government, such as the U. S. Bureau of Agricultural Economics, U. S. Bureau of Home Economics, the Food and Drug Administration, the Federal Alcohol Administration, the Bureau of Public Health, the Federal Trade Commission, Consumers' Counsel of Agricultural Adjustment Administration, and the Consumers' Counsel of the Bituminous Coal Commission, and others have directed some of their functions toward the protection of the consumer.

The most extensive work of this kind, however, was undertaken under the NRA. After the pas-

***More information is needed, say consumer groups. The Standards Section of the Consumers' Division is making a survey to determine what data is now available to the buying public.***

*Photos from E. I. duPont de Nemours & Co.*



### **Standards Section Summarizes Material for ASA Committee**

The Standards Section of the Consumers' Project, successor to the Consumers' Advisory Board of the NRA, is now working on an educational and informative program. The results of its work are being made available to the American Standards Association in its work on consumer standards. For the use of the Advisory Committee on Ultimate Consumer Goods, a summary of standards and specifications, test methods and codes and annotated literature has just been compiled for those subjects on which subcommittees have been set up.

This Section is taking its place in the general standardization program as the active agency on consumer standards of the Federal Government.

sage of the National Industrial Recovery Act, a Standards Unit was organized by the Consumers' Advisory Board of the NRA. As a result of the work of this Standards Unit approximately 245 of the 556 approved NRA Codes, and some 200 Supplements, contained provisions for, or at least reference to the establishment of standards, grades, and labels. The experience gained by the Standards Unit in the drafting, application, and enforcement of consumers' standards was brought into the open discussions before the NRA Code hearings, where manufacturers, distributors, and consumers were given an opportunity to freely express their opinions on the subject of consumer standards. Under this procedure the necessity for consumer standards was dramatized more than at any other time and helped to educate both the manufacturers and consumers.

At this time, the Division of Research and Planning, also working under the NRA, faced with the importance of standards in the economic analysis of industries, established a Standards Unit. This Unit cooperated with the Standards Unit of the Consumers Advisory Board of the NRA in fostering consumers' standards and brought to the attention of manufacturers and distributors the economic implications of standardization.

The National Bureau of Standards and the American Standards Association cooperated with both Standards Units of the NRA in supplying

expert assistance and information whenever necessary,—and their services were of great value.

### ***Work of Standards Section of the Consumers' Project***

The present Consumers' Project is a successor to the Consumers' Advisory Board of the NRA, and as such is a custodian of all the valuable material on consumers' standards assembled during the NRA period.

The work of this Standards Section is directed into different channels than was the work of the Standards Units of the NRA. It is of an educational and informative character.

The Standards Section has continued the collection and assembly of known standards and specifications on consumer goods formulated by the federal, state, and municipal government, technical and engineering societies, and trade associations. Contact, interrupted after the expiration of the NRA, was reestablished with all the above organizations. The Standards Section is supplied with standards, specifications, and test codes on consumer goods. As a result of this, up-to-date material is now available which permits following the development of standardization in the field of consumer commodities and to answering questions with regard to consumer standards.

In addition to standards and specifications, the Standards Section is collecting and assembling all material from governmental and other unbiased sources which tends to throw light on the selection and purchasing of commodities. This information is used in answering inquiries concerning commodity problems. The easily available and non-technical articles in various publications are summarized and listed along with material supplied by the Consumers' Counsel Division of the Agricultural Adjustment Administration in its publication *Consumers' Guide*, in a regular section called "Consumers' Bookshelf". It is expected that these and additional annotated references will be brought together by subjects and published soon in a special Bulletin prepared in cooperation with the Consumers' Counsel Division.

### ***Special Report on Standards***

A special report by the members of the staff of the Standards Section is nearing completion. It deals with the development and present status of standards and specifications for consumers' goods.

This report presents a panoramic view of the nature of standards and specifications for consumers' goods and the various uses to which they

have been put in the United States.

It includes:

The historical background of consumer standards;

Definitions of terms pertaining to standardization used in the report;

Types of standards;

Activities of governmental and non-governmental agencies in the field of consumer standards;

Activities of governmental agencies for the protection of the consumer since 1933;

Proposed legislation involving standards and labeling;

Standards and labeling under the law;

The economic implication of consumer standardization; and finally

Some suggestions as to the future possibilities of the protection of the consumer through standards and labeling.

To assist those buyers who may desire to use the grades of the Bureau of Agricultural Economics for canned fruits and vegetables, there has been prepared in cooperation with a member of the staff of the U. S. Bureau of Agricultural Economics, an explanation of these government grades and a guide for making up a specification. This material will soon be made generally available.

Also, there has been published a pamphlet entitled *The Home Medicine Cabinet*, which is available free on request to Consumers' Project.

### **Food Products First Section**

The Standards Section has in preparation a *Manual of Consumer Commodity Specifications*. The first part of the Manual will deal with food products. Available specifications on consumer goods, formulated by the Federal government, states, municipalities, and trade associations are being analyzed and the contents summarized in a standard form which could be used for comparative purposes.

A very important part of this work is a summary of parts of state laws and the regulations made to carry out their provisions, dealing with standardization and grading of fresh fruits and vegetables, honey, dairy products, eggs, poultry, etc., and the marking and dimensions of containers in which they are sold. The summarized material for each state is being checked by the proper authorities of the respective State Departments of Agriculture.

The second part of the Manual will contain standards and specifications, test methods, and summaries of technical literature having to do with textiles. The subjects covered will comprise, wherever possible, the width of the goods, chemical composition, weight per square yard or lineal yards per pound, shrinkage, and color



**Consumers are protected by Government standards on some food products. The Standards Section's survey will show what these are.**

permanence to washing, light, perspiration, dry-cleaning, pressing, etc. There will be tabulations giving the usual standard cloth constructions for cotton, silk, rayon, and woolen goods. All available Federal, state, and municipal standards will be given, as well as those recognized by the various textile trades.

The Standards Section has recently submitted to the American Standards Association a summary of standards and specifications, test methods, and codes and annotated literature for the use of the Advisory Committee on Ultimate Consumer Goods. The content of the available information was summarized in condensed form. Only sections dealing with those subjects on which subcommittees had been set up were presented.

### **Government "Consumer Protection"**

A brief review of the "consumer-protective" activities of the various Federal agencies discloses the following:

The Bureau of Agricultural Economics, U. S. Department of Agriculture, formulates standards for practically all farm products and grades and inspects for quality based on these standards.

The Consumers' Counsel Division of the Agricultural Adjustment Administration has as one of its functions "an attempt to assist in the self-protection of consumers by publishing information intended to advise them in wise economi-

cal buying." It publishes *The Consumers' Guide*.

The Food and Drug Administration inspects food and drug products.

The Bureau of Home Economics, U. S. Department of Agriculture, regularly carries on studies on efficiency and usefulness of household equipment and appliances. It also compiles informative material to guide the housewife in the selection and use of this equipment, and offers suggestions for the labeling of consumer goods, particularly labels containing specific useful information as applied to textiles.

The Federal Alcohol Administration prescribes regulations governing the labeling of alcoholic beverages and the size and fill of containers.

The Consumers' Counsel of the Bituminous Coal Commission.

Other activities of interest to the consumer are: Scientific work on commodities and the development of test methods and procedures by the National Bureau of Standards, U. S. Department of Commerce.

The work of the Bureau of Mines of the Interior Department, in analyzing coal and other fuel.

Promotion of consumer buying education by the Office of Education, U. S. Department of Interior, along with its general program of home economics training.

Activities of the Federal Trade Commission.

Work of the Bureau of Public Health.

Work of the Standards Section of the Consumers' Project, U. S. Department of Labor, in research and analysis of standards, and problems connected with standards, for consumers' goods.

## Standard Zinc-Coated Pipe Gives Longer Service

The insistence of users of zinc-coated pipe that a heavy coating of zinc, such as that specified in American Standard G8.7-1937, is necessary to insure long life for this type of pipe has been substantiated by the recent investigations of the National Bureau of Standards.

For a number of years prior to 1934 zinc-coated steel pipe was customarily furnished with a light coating for ordinary purposes, because the specifications of the American Society for Testing Materials for this type of pipe did not include definite requirements for weight of coating. In 1934, the A.S.T.M. specifications A 120 were revised to provide weight of zinc coating of not less than two ounces per square foot of total coated surface. In this form the specifications were approved by the American Standards Association as American Tentative Standard. This tentative standard was advanced by the A.S.T.M. to the status of standard, and has now been advanced to American Standard G8.7-1937, by the American Standards Association.

### Heavy Coatings Superior

The conclusions of the investigations of the National Bureau of Standards are that these heavier zinc-coatings are superior to thin ones for long periods of service and that galvanized steel loses weight at rates of from one-half to one-fifth of the rate of loss of bare steel over a ten-year period. The Bureau's study indicates that the type of ferrous metal to which the zinc is applied

does not have a marked effect on the rate of corrosion of galvanized materials during the first ten years of exposure. Further, the rate of corrosion of galvanized steel varies with the character of the material exposed to the soil. Corrosion is higher when zinc alone is exposed than when the alloy layer is exposed and highest after much of the alloy layer is destroyed.

The Bureau's study with respect to the lead coatings is summarized in the following conclusion:

Lead is sufficiently corrodible in most soils to result in the penetration of lead coatings of the thickness now used within ten years. After the lead has been punctured, accelerated corrosion may occur because of the differences of potential between lead and steel.

Latest results of the Bureau's study of metallic pipe coatings are given in Research Paper 982, reprints of which may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., at 10 cents each.

## BSI Names Women's Representatives On Domestic Standards Committee

The British Standards Institution is organizing a technical committee on domestic standards, it is reported, on which it is appointing representatives of such groups as the Association of Teachers of Domestic Subjects, the National Federation of Women's Institutes, the National Union of Townswomen's Guilds, the National Council of Women, and the Society of Women's Housing Estate Managers.



## British Standard Sets Basic Tooth Form for Worm Gears

A recommended thread form for worm gears with a normal pressure angle of 20 degrees which can be generated from a straight-sided basic rack is one of the features of the new British Standard Specification for Machine Cut Gears (Worm Gearing) No. 721-1937. This form is a basic tooth form which follows closely the principles underlying the British Standard Specifications 436-1932 (Helical and Straight Spur Gears) and 545-1934 (Bevel Gears). It has the advantage of giving good wheel-tooth forms over the whole range of possible designs and of eliminating certain difficulties in connection with interference which tend to arise in the case of straight-sided worm threads of small axial pressure angle, according to the Foreword to the standard.

### *Simplifies Accuracy*

One advantage claimed for the procedure on which the form is based is that it simplifies the cutting, profile grinding, and measurement of the threads and the attainment of the degree of accuracy necessary for high-speed high-efficiency worm gearing.

The principal difference between the provisions

for worm gears given in this standard and those for helical and straight spur gears is that the clearance has been reduced from 0.25 to 0.20 of the normal module. This has been done in order to give a more substantial tip to the teeth of hobs and also to avoid undue reduction in the root diameter of the worm and in the cross-sectional area of the wheel rim. The thread thickness of the worm is equal to one-half the pitch at one-half the total depth instead of at one-half the working depth, because the wheel is usually the weaker member and more subject to reduction of tooth thickness by wear.

The standard recommends the use of a suitable phosphor-bronze for the wheel rim and a worm of case-hardened steel, profile ground and polished after hardening.

Three classes of gears are covered in the standard:

- Class A. Precision gears for wheel pitch line speeds above 1,000 feet per minute.
- Class B. High-class gears for wheel pitch line speeds below 1,500 feet per minute.
- Class C. Commercial gears for wheel pitch line speeds below 300 feet per minute.

The standard specifications, developed under the supervision of the Mechanical Industry Committee of the British Standards Institution, may be ordered through the Library of the American Standards Association at \$1.75.

## Air Photography Requires Standard Lens Performance

Detailed requirements for camera lens performance are contained in the standard specifications for airplane photography issued recently by the American Photogrammetric Society.

More stringent requirements for the lens and camera used in aerial photography are made necessary because of shifting emphasis to stereoscopic methods, showing elevations, in airplane mapping. Because of this, an apparatus for testing airplane lenses and cameras has been developed and constructed by Dr. Irvine C. Gardner and Frank A. Case of the Optical Instruments Section of the National Bureau of Standards.

In making the tests no outdoor targets are used. A group of collimators provides test charts which, optically, are infinitely distant. Test exposures are made, and from an examination of the resulting negative complete information can be obtained concerning the back focal length, equivalent focal length, and both the distortion and the quality of definition in all parts of the field. The test can be made upon the lens in its barrel, or

may be applied to the lens and camera as assembled. In this last case one obtains the constants of the lens corresponding to the particular image plane determined by the construction of the camera. The negative made during the test is a convenient record of the performance of the lens.

A complete description of the precision lens-testing camera will be published as RP984 in the April number of the *Journal of Research*, published by the Government Printing Office, Washington, D. C.

## British Issue Third Edition Of Standard Petroleum Tests

The third edition of *Standard Methods for Testing Petroleum and Its Products* has been published by the Institution of Petroleum Technologists, London. Methods used for all types of tests, including tentative methods not sufficiently established in detail to be accepted as standards, are included. The book was prepared by the Chemical Standardization Committee of the Institution. Copies may be ordered through the American Standards Association Library.

## U. S. Bill Proposes Textile Labeling Under National Bureau of Standards

Informative labeling of textiles to prevent deception of the public would be regulated in accordance with rules to be laid down by the National Bureau of Standards if a bill introduced by Hon. Theodore A. Peyser of New York on March 1 in the House of Representatives should become law. The bill would give the Bureau wide powers to make rules for labeling textiles and would make it illegal to ship, sell, or offer for sale in interstate commerce textile fabrics not labeled in accordance with such rules.

The bill, known as H.R. 5182, was referred to the Committee on Interstate and Foreign Commerce.

"The National Bureau of Standards of the United States Department of Commerce shall have power to make such rules and regulations concerning the labeling, stamping, or tagging of textile fabrics as shall be necessary or appropriate to prevent deception of the public," the bill provides. "Such rules and regulations may provide for the kind and type of labeling, stamping, or tagging of particular classes of textile fabrics and for the proper affixing of such labels, stamps, or tags. Such rules and regulations may forbid the inclusion in labels, stamps, or tags of the names of certain kinds of fiber, thread, or yarn, or any names commonly regarded as indicating a textile fabric containing such fiber, thread, or yarn, unless the labeled fabric contains prescribed amounts of percentages of such fiber, thread, or yarn. The National Bureau of Standards shall have power to classify textile fabrics and may apply certain rules and regulations to certain classes of textile fabrics without applying them to other classes. The rules and regulations of the National Bureau of Standards shall be effective upon publication in such manner as the National Bureau of Standards shall prescribe."

## A.S.T.M. Plans Annual Meeting New York, June 28-July 2

The American Society for Testing Materials will hold its Fortieth Annual Meeting at the Waldorf Astoria Hotel, New York, June 28 to July 2.

In addition to the customary technical sessions and committee meetings several groups of papers relating to standards and to the correlation of research with the development of standards will be given. These will include a Symposium on Significance of Tests of Coal and Coke, another on Correlation of Laboratory and Service Tests of

Paints, and one on Consistency: Critical Discussion of Present-Day Practice in Consistency Measurements. There will be an extensive series of papers on asphalt, and several on water and on cast iron.

Details of the meeting are being handled by a committee headed by Dr. W. F. Skinner, Assistant Director of Research, Brooklyn Edison Company, Brooklyn, N. Y.

## Drawing Association Prepares Data Sheet for Screw Threads

A data sheet on screw threads for the use of mechanical draftsmen is being prepared by the Mechanical Drawing Association of New England. The sheet shows drawings of thread forms (American Standard and Whitworth Standard), nomenclature, thread representation, application of bolts and screws, and pipe thread.

A tentative drawing was enclosed with the February issue of the Association's publication, *Mechanical Drawing News*.

Information about the data sheet may be obtained from Edward T. Temple, of the Association's Standards Committee, Mechanic Arts High School, Boston, Mass.

## Indexed List of British Standards

A new indexed list of British Standards has just been received at the ASA office. This includes a numerical list of British Standards, a subject list, a list of standards in course of preparation, and some general information about the work of the British Standards Institution.

Members of the ASA who make frequent use of British Standards should find this Index especially helpful. Copies may be ordered through the ASA office at 35 cents each, subject to a delay of three weeks awaiting delivery from London. Members ordering copies are requested to enclose payment with their orders.

## New Commercial Standard Planned For Brick Colors and Textures

The Structural Clay Products, Inc. has asked the National Bureau of Standards to cooperate in establishing a Commercial Standard for Colors and Textures of Brick.

It is expected that the project will cover color nomenclature and method of classification of surface textures and variations in color and texture affecting the appearance of brick.

## Establish Commercial Standard On Hardwood Dimension Lumber

Basic specifications for the production and use of wood parts of broadleaved species known as hardwood dimension lumber, in various stages of completion, have just been released as Commercial Standard CS60-36. Hardwood Dimension Lumber, the Division of Trade Standards, National Bureau of Standards, announces.

The standard was established pursuant to a request from the Hardwood Dimension Manufacturers Association.

General requirements covering seasoning, gluing, workmanship, and inspection, are included. More detailed specifications cover five grades of flat stock and four grades of squares, which are based on the presence of natural or manufacturing defects. Standard methods of measurement, standard dimensions, and tolerances are also included.

General information on the recommended uses of the various grades is included in the publication together with data excerpted from the *Wood Handbook* of the Forest Products Laboratory. This information includes material on shrinkage and moisture content, strength values of various commercial woods, and a glossary of terms.

Copies may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., at 10 cents each.

## French Welding Committee Drafts Standard for Electrodes

The first draft of a specification for coated electrodes for structural steel has been issued by the French Committee for Welding Standards. Eleven diameters (0.04 to 0.51 in.) and four lengths (6 to 18 in.) are standardized.

Four standard colors are given to electrodes according to their mechanical properties. The mechanical properties are determined on all-weld-metal specimens machined from a deposit made in an angle iron 10 in. long. The speed of welding must be such that the corners of the angle iron do not become red.

Copies of the draft have been ordered by the American Standards Association for use of ASA members.

## British Tests Show Good Service From Standard Road Surfaces

Unusually good service from road surfaces laid down according to British standard specifications was reported from tests made recently by the Brit-

## Coal Classification Of Greatest Value

The importance of these two standards (*Classification of Coals by Rank and Classification of Coals by Grade*), whether measured by technical advances they represent or in their application by business and government alike, is far greater than any project that has come before the Mining Correlating Committee in its fifteen years of existence.

I am sure that this one effort more than justifies all the time and expense ASA has put into the mining and allied fields.—*E. A. Holbrook, Dean, School of Engineering, School of Mines, The University of Pittsburgh.*

ish Department of Scientific and Industrial Research and the Ministry of Transportation. The standard covers a non-skid road surface, using precoated chippings rolled into the surface at the time the road was laid. The tests showed, according to the report, that safe surfaces can be laid that will stand up to fast and heavy traffic without any maintenance cost for at least 5 years.

The tests were made with a machine consisting of a motorcycle and sidecar in which the sidecar wheel could be set at an angle to the direction of traffic. The sideways force at right angles to the wheel exerted on it by the road, and the load on the wheel are measured; and from records obtained with instruments in the sidecar, the ratio of these forces is obtained and expressed as a coefficient which is high for good non-skid surfaces and low for poor ones.

## NRDGA Asks Standard for Colors For Kitchen, Bathroom Accessories

The National Retail Dry Goods Association has asked the National Bureau of Standards to cooperate in establishing a Commercial Standard for Colors for Kitchen and Bathroom Accessories.

The project is expected to cover the selection and approval of a limited number of basic colors to be established as standard for kitchen and bathroom accessories; the preparation, control, inspection, certification, and distribution of color reference samples for control of production, for inspection of the product, and for certification to the purchaser; and a method of making color comparisons.

## Cooperatives Buy Trucks On Standard Specifications

**S**TANDARD specifications, backbone of the cooperative movement which recently has been gaining a noticeable foothold in American buying and selling, have been extended by the cooperatives from simple consumer goods to such large-scale production items as tractors and lubricating oils.

The Indiana Farm Bureau Cooperative Association, Inc., of Indianapolis, with a membership of approximately 100,000 farmer members, has developed standard specifications for a tractor which uses a well-known standard truck motor, and a body built for the cooperative according to its own specifications. The tractor is built with five speeds so as to be adaptable to both field and road work, and has speeds varying from one mile to 45 miles an hour. It has rubber tires, lights, and battery.

### *Tractors Economical*

"The specifications which have been worked out on this tractor make it extremely versatile as well as more economical than ordinary tractors," says I. H. Hull, president of the National Cooperatives. "By using this standard motor, which is the latest word in modern developments, we have the advantage of the mass production system of the automotive industry. The tractor is assembled by our own group. At the present time the job is being let by contract to a Michigan manufacturer. All the rights, however, in the production of the tractor are owned by cooperative groups which have joined in this enterprise."

The organization operates as a wholesale cooperative association which is owned and controlled by local retail cooperative associations, in turn owned, controlled, and operated by individuals. In Indiana the members are all farm people. With some of the other groups which have joined together they constitute the National Cooperatives, with membership of approximately 700,000. Of these, 100,000 are patron members of the Indiana Farm Bureau Cooperative Association. The Indiana wholesale handles farm supplies almost exclusively, but the Kansas City and Superior wholesales, affiliated with it, handle groceries and some dry goods.

"Nearly everything we handle in Indiana is handled on a specification basis with standards similar to those developed for the tractor," Mr. Hull says. "For instance, for many years one of the threats of Indiana farming was that people were unable to raise a satisfactory crop of clover. It became

evident that one of the reasons clover winter killed was that large quantities of unadapted seed were being shipped in from Southern Europe. We helped to pass a law for the staining of seed and simultaneously began the service of buying all our seed of known origin, labeling that seed under our own brand with our guarantee that it was adapted to our severe winters and should live over any normal winter.

"Formerly we had difficulty buying lubricating oils of known specifications which would adequately lubricate our internal combustion motors. We installed our own factories and now we are distributing oil with open specifications telling the flash point, viscosity, and cold test in order that our people may intelligently know the specifications of the oil which they buy.

"Our fertilizer and feed formulae have been made up in conference with the specialists of several Universities. In the case of feed, instead of carrying some mysterious advertisement of our particular mixture, we advertise to the world the exact quantity of each ingredient which goes to make up the feed. We carry on constant experiments to find the best possible mixture to produce the best results and the findings of these experiments are quickly put to work in the various feed combinations.

"In some cases, of course, we are doing a considerable amount of work ourselves to develop our own specifications."

### **Simplified Practice Color Code For Steel Bars Effective April 1**

A Simplified Practice Recommendation for a Color Code for Marking Steel Bars became effective April 1, the Division of Simplified Practice, National Bureau of Standards, announces. The recommendation will be identified as Simplified Practice Recommendation R166-37.

The recommendation is limited to a color code for marking commonly used grades of steel, as represented by SAE numbers. It was proposed and developed by the National Committee on Iron and Steel of the National Association of Purchasing Agents.

Until printed copies are available, complimentary mimeographed copies may be obtained from the Division of Simplified Practice, National Bureau of Standards, Washington, D. C.



## AGA To Test Hair Dryers On Standard Requirements

Gas hair dryers used in beauty parlors are now included in the approval requirements program of the American Gas Association and the American Standards Association. Requirements covering in detail all phases of construction and performance of hair dryers have been prepared by the A.G.A. Approval Requirements Committee, ASA Sectional Committee Z21, and approved by the American Standards Association. These requirements have been completely correlated with the various listing requirements for gas appliance accessories such as burner valves, draft hoods, pressure regulators, thermostats, etc.

The American Gas Association Testing Laboratories can now test gas hair dryer equipment under these new standards.

Before this, a few hair dryers were tested and approved under the requirements for space heaters, unit heaters, or central heating to help the industry in insuring proper safety and construction of this type of equipment. Hair dryers approved under these other classifications must be resubmitted and tested under the new standards before they are listed as approved hair dryers in the Association's Directory of Approved Gas Appliances and Listed Accessories. They may continue to be approved and listed under the other classifications, however, for a period of five years, but at the end of that time must be retested and approved under the hair dryer standards.

## SAE Lighting Division Acts On Headlamp Polarization

Action which amounts to recognition of the need for standards for a new type of automobile headlight not yet in use was taken by the Lighting Division of the Society of Automotive Engineers recently.

The Division informally endorsed a resolution of Technical Committee 22 of the International Standards Association on a standard method for polarization of motor-vehicle headlamps to reduce glare, and authorized a subdivision to study headlamp polarization. The purpose of the subdivision's study will be to obtain data on which to formulate a definite standard for later adoption by the SAE. One of the problems to be worked out by the subdivision is the need, because of light absorption by the polarized glass, for higher lamp wattages than can be had with present legal headlighting equipment.

Presented to the Society of Automotive Engi-

## Standardization Is a Long-Drawn Process

It is illuminating, in looking back over old periodicals devoted to industry, to find how many times leaders foresaw the changes that were under way. At a meeting of the National Machine Tool Builders' Association, in 1904, Frederick A. Geier of the Cincinnati Milling Machine Company advocated greater standardization in machine tools. Fortunately he lived to see it become a reality in the adoption of the standard spindle nose that pointed the way to other standards.—*American Machinist*, April 7.

neers by the Bureau International de Normalisation de l'Automobile, the resolution endorsed by the Lighting Division provides that the plane of polarization for motor-vehicle headlamps should be at an angle of 45 deg to the horizontal and extending from the upper left to the lower right quadrants of the headlamps, when facing towards the lamps. The informal endorsement of the Division was accompanied by an additional stipulation that the light interceptor, that is, the windshield or glasses, should also be polarized in the same plane, as, otherwise, polarized headlamps would be ineffective.

"Although there is apparently little specific data available on this type of lamps and none of them are in commercial use, the Lighting Division feels that a definite standard should be adopted if polarized headlamps are to be of value should they come into widespread use," says the *SAE Journal* in its announcement of the Lighting Division's action.

## Japan Standardizes Machine Tools

Standardized machine tools are expected to be introduced in Japan soon, due to the efforts of the five leading machinery makers and the Bureau of Resources, according to a report issued recently by the U. S. Bureau of Foreign and Domestic Commerce.

Designs have all been submitted to the authorities, the report says, and two or three makers have already undertaken manufacture of the standardized machine tools.

## New Test Helps Control Thickness of Nickel Plating

A non-destructive method for measuring the thickness of nickel coatings on metals such as brass and zinc has been developed by the National Bureau of Standards. It is believed that this method will prove useful for factory control of the plating on such articles as brass hardware and plumbing fixtures.

In making the test, a small spring balance is used to measure the force of attraction between the nickel coating and a small permanent magnet. The thickness of the nickel is indicated by the reading of the dial, which is standardized against a similar nickel coating of known thickness. Before testing nickel coatings of unknown source, they should be annealed for a short time at 400 C (750 F).

In general, the protective value of nickel coatings on either steel or brass, including those covered with the usual thin chromium layer, depends largely upon the thickness of the nickel. This has usually been specified in terms of the average thickness, but now a certain minimum thickness is often required. Rapid methods of measuring the thickness at any point are therefore desirable, but most of the methods now used destroy the coating or the article.

The new non-destructive method will be described by A. Brenner in Research Paper 994, in the May number of the *Journal of Research*, published by National Bureau of Standards.

## ASA Withdraws Two Standards on Iron Plates and Coarse Aggregates

The American Standards Association has approved the request of the American Society for Testing Materials for the withdrawal of the American Tentative Standards, Specifications for Wrought-Iron Plates (G13-1931) and Method of Test for Apparent Specific Gravity of Coarse Aggregates (A27-1924).

This action is in accord with that of the American Society for Testing Materials which withdrew these standards in 1936 as A.S.T.M. standards in accordance with recommendations of its committees for cast-iron and road and paving materials. In both cases, new standards have been issued as tentative by the A.S.T.M., but further work may be required to bring them into line with present technical practice.

The American Society for Testing Materials has indicated that when the new standards are developed to the status of A.S.T.M. standards, they will probably be submitted to the American Standards Association for consideration and approval.

## N.E.M.A. Handbook Tells How To Install Electrical Wiring

A handbook which makes definite recommendations for installation of electrical wiring in all types of buildings, both for use of electrical appliances and also to meet the requirements of American Standard safety codes, has just been published by the National Electrical Manufacturers Association.

Many charts and drawings give specific information on wiring needs and installation.

"It is not a booklet on 'how' to wire in the sense of covering specific wiring materials and their methods of installation," says the National Electrical Manufacturers Association, "it is a booklet on 'why' adequate wiring is needed, 'what' must be installed to supply those needs, and 'where' it should be placed."

The "Handbook of Interior Wiring Design," consisting of 80 pages, may be obtained from the National Electrical Manufacturers Association, 155 East 44th Street, New York, at \$1.00 per copy. Quantity prices are available.

## A.S.T.M. Index To Standards

The American Society for Testing Materials has issued its Index to A.S.T.M. Standards and Tentative Standards, giving information on all of the 796 A.S.T.M. standards as of January 1, 1937.

The Index is of use in determining whether the A.S.T.M. has issued standard specifications, test methods, or definitions on any particular subject, and is of help in locating the standards in the volumes where they appear.

Copies of the Index may be obtained without charge from the American Society for Testing Materials, 260 S. Broad Street, Philadelphia, or from the ASA Library.

## Better Services From Standard Traffic Paint

Specifications for traffic paint and a machine for measuring the relative wear of such paints have been developed by the National Bureau of Standards during the past ten years, and distinct improvement in durability of traffic paints in actual service has resulted, according to the *Technical News Bulletin*. A circular describing the specifications and tests is being published by the Scientific Section, National Paint, Varnish, and Lacquer Association, Inc., 2201 New York Avenue, N.W., Washington, D. C.

## *Industry Profits from American Standards*

The work that the American Standards Association is doing cuts across almost every phase and process of industrial America. Five hundred technical societies, trade associations, and government organizations are cooperating in the technical work.

**STANDARDS** Some standards have to do with the parts and materials that go into a manufactured product—nuts, bolts, screws, ball bearings, gears, shafting keys. Others concern tools, such as taps, milling cutters, forming tools, and the machine tool elements most essential to production. Still others affect the purchase of materials—metals, chemicals, cement; or designate tests for the finished product—insulated wire, fire hose, gas-burning appliances, safety glass for automobiles.

The use of these standards throughout industry leads to convenience in purchase, economies in manufacture, and to savings in the purchase and maintenance of plant equipment.

**SAFETY** The work that the ASA has been carrying through in the safety field is today serving as a basis for State industrial regulations. Forty of these codes so far completed are supplying industry with sound recommendations for the removal of accident hazards, and are giving industry a definite voice in the preparation of many legal rules and regulations under which it must operate.

**HEALTH** A similar program has recently been launched in the field of occupational disease prevention; and past experience indicates that this new work will be just as well received as has been the case with the safety codes.

**BUILDING** All building and plumbing code work formerly carried on by the Department of Commerce is being continued under the procedure of the American Standards Association. Municipalities already look to the ASA for material to use as the basis of their building codes.

**CONSUMER** Now, through the cooperation of the consumer-retailer organizations a program of standards for consumer goods is rapidly developing which is bound to affect hundreds of articles in the retail field.

**INTERNATIONAL** Where problems of international unification arise, the ASA, through its membership in the International Standards Association, represents the interests of American business. The international reference temperature for gaging practice, the work on ball bearings and on automobile parts, the inch-millimeter conversion tables, are examples of activity in this field.

**GOVERNMENT RELATIONS** In all this work the ASA has the full cooperation of the Federal, State, and local governments. Last year at the request of the Interstate Commerce Commission, the ASA developed recommendations for safety equipment and inspection of buses and trucks, which today constitute the main substance of the Commission's regulations. This is but one example of ways in which the government is calling upon the ASA for cooperation in matters involving government-industry relations. Such activity, together with safety and building code work, gives industry effective contact with government groups.

**MEMBERSHIP** All these factors make the work on national standards of immediate interest to every industrial concern in the country. The work is entirely financed by industry. The Constitution of the ASA provides that all organizations concerned may join in supporting the work—the "little fellow" as well as the great corporation—through individual company memberships.

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ternational Association of Industrial Accident Boards and Commissions, and the National Council on Compensation Insurance, representing industry, government, and insurance, had administrative responsibility for the work.

*Quantity prices are available. Members of the American Standards Association are entitled to 20 per cent discount on all standards approved by the ASA.*

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